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An

Inaugural Essay

on the

Medical Effects

of

Light and Darkness

by

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Such, naturally, are the dispositions of all
that in our constant anxiety and desire for things, novel but
comparatively unimportant the greatest and most
unestimable of our enjoyments, because recurring
daily, are passed over unnoticed — forgotten as essen-
-tial to our Comfort and Happiness and because
commonly and constantly continued to us, the value
of the Gift is not estimated nor the munificence
of the Donor properly acknowledged —

In attempts to account for the various Phe-
-nomena of Nature, it is not less amusing than
surprising to observe how frequently the more
apparent Causes are skipped over and hidden
arcana ransacked for Arguments to make proba-
-ble some favourite Theory —

In like manner, in Medicine, who can but
admire the ingenuity of the numerous Theories
advanced to explain the different Phenomena of
Diseases and the modes of Treatment accomodo-
-dated to each of them — In all, however, it has
appeared to me, that while from every Kingdom
Remedies are derived, very little, I may say, no atten
-tion has been paid to the Medical Effects
of Light and Darkness — from observations
on which I propose as the Subject of the follow
-ing short Essay

A descant on their many and various effects I will not attempt, because too extensive and because unconnected with that view which I propose to take of the Subject — No one doubtless it is certain which lives in the Light is insensible to its effects —

In the Treatment of this Subject, the consideration of Light as constituting a part of the aliment of Man, I shall first attempt — The propriety of this addition to the Materia Medica Dr. Barton inculcated in his Lectures on the Materia Medica —

That Light is essential to those various Processes of the animal Oeconomy constituting perfect Health may, I think be inferred from the pale and meagre appearances of those whose constant occupations are in Cellars, Subterraneous Caverns and other Places impervious by the Solar Influence — That other Causes combine in inducing this Effect I do not deny, but that the deficiency of Light has a direct Influence and influences, indirectly, through every Cause — this perfect revolution when again submitted to its action incontestibly proves —

So confidently does Dr. Darwin ~~the~~ propose the Colour of the Skin is influenced by Light that he deems it practicable by confinement in the Dark

or by a removal to more Northern Climates, to undergo perfectly white the Copper Coloured Natives of Sunny Countries. And as evincing of this effect I beg leave to quote the following Passages from a Book entitled the Philosophy of Medicine by an Anonymous Author—

Animals, says he, deprived of Light or living in dark Places lose their Colour and become white as is observable in Arctic Animals, during the long Nights in the Countries near the Pole. I have observed it also, continues he, in Animals that inhabit the Alps and which conceal themselves the greatest part of the Year in subterraneous Dwellings. Mice kept in a Cage in a very dark Room become white—

Indeed to ascertain the Influence of Light in occasioning the variety of Colour in the Human Species, it will only be necessary to consider the Complexions of the different Countries, and we shall find them more or less dark as they approach to or recede from the Line. Thus for instance the Finnet who inhabit a more Southern Climate are darker in their Complexion than the Inhabitants of Great Britain. The Spaniards more Southerly are browner than they &c —

The debility, and emaciation of Persons subterraneously employed demonstrate, I think,

fatisfactorily, the effect of its abfence on the general Health — The partial and fometimes entire deprivation of this indefpenfable Nutriment in Dungeons, Cells and other gloomy Places of confinement, with the Damp, unavoidable in confequence of its exclusion, explains the Cause of the very great injury done to the Health of the Prisoners therein confined and also the reason why the meaner forts of Houses in Great Britain darkened on account of the very heavy Window Tax exhibit a race of pale and unhealthy Inhabitants —

Upon a Subject interesting like this a very surprising few Experiments have been made to ascertain the effects of Light as they respect the absolute necessity of the addition of this Nutriment to every other, for the maintenance of firm Health, and as between the Animal and Vegetable Kingdoms there exists an analogy strikingly great — a few Examples of its effects on the latter will, I hope, be admitted as demonstrating its very essential importance to the former —

That Light is requisite to the Vegetation of Plants is acknowledged, I believe, by all Botanists and certainly proved by these very

great partiality to it — Plants confined in a Room turn always towards the Window and those growing in close Woods grow taller than those in open Grounds, for the purpose of acquiring this necessary fluid — Dr Barton relates the Instance of a Potatoe, which planted in a Cellar from which the Light was entirely excluded, but thro a small Aperture in the Roof twenty five feet distant, shot out its vine in the Direction of the Light and made its way thro the Aperture — This partiality to it is moreover evinced by the concerning with which some follow the Sun and by the direction of their Flowers —

That without Light Plants are colourless and become diseased is also certain — The invariable Consequence of the exclusion of Light from Vegetables is a loss of Colour and the Disease called Blanching or Etiolation — It is a fact that the green Colour may be continued to the Leaves of Crops, in a dark Cellar, by the Light of a Common Lamp —

Admitting as was supposed by Dr Brown and elucidated so satisfactorily and beautifully by Dr Rush, that Life is "a forced State" dependent on the action of Stimuli internally and externally applied — I shall next proceed to consider Light as constituting one of these external Stimuli — And this I think demonstrable 1st By an attention to the Pulse, which

is slowest in the Morning, increases as the Sun ascends the Horizon, at twelve is most frequent for a while remains so and then with time declines. But to be more certain of the effect induced on the Natural System by the Stimulus of Light, I beg leave to relate the following experiment made by myself on a young Gentleman my Intimate Acquaintance At Seven o'clock P.M. the excitability of his System being greatly increased by an abstinence of twenty four hours, from every kind of Aliment I closed the Windows of the Room in which he had remained during the day, with a temperature nearly equable - thus rendering it perfectly dark. Fifteen minutes after the total exclusion of Light, I examined his Pulse, which beat with a fullness not exceeding Sixty two and with a frequency not exceeding fifty three Strokes in the minute - His Spirits suffered an evident depression - Having several times repeated this Examination with the same result, I caused just a number of Candles to be suddenly introduced as to occasion a very considerable Glare. The instantaneous effect was, as I expected, a very ~~considerable~~ copious discharge of Tears - Fifteen minutes after this Illumination I observed

the effect on the Pulse, which very far exceeded my Expectations - from fifty three it had arisen to fifty six strokes in the minute with an increased Degree of fullness - His Spirits, he confessed, were exhilarated - Eight or ten minutes afterwards, I renewed my examination and found the Pulse increased to fifty eight strokes but without any additional fullness - I afterwards made several examinations, but observed no alteration -

The Influence which Light exerts on the Animal Spirits, evinces it Stimulant -

Dr Rush relates the account of a Mr Rivers who informed him that he had spent a Summer in Lapland, during the greatest part of which the Sun was seldom out of Sight - He enjoyed while there uncommon Health and Spirits both of which he supposed occasioned by the long duration and invigorating Influence of Light -

So considerable are its effects on Persons previous by supposed, that the elevated and depressed States of their minds are almost in proportion to the Splendor or obscurity of the Solar Rays and hence in many instances Bowels by Hypochondriac Affections are generally less severe during the Summer - This effect is

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very observable among Invalids generally—

If stimulating effects of Light may again be inferred from its preventing Sleep in those Systems elevated above what Dr. Rush calls the "Sleeping Point" and inducing it in those depressed below it— Instances of a termination of Sleep at the first Dawn of the Morning Light are many and who, in a Case of Typhus Fever has not observed with satisfaction, the succession of a pleasant and invigorating Morning Nap to a restless and unquiet Night— The explanation consequence of the extinction of the Light of a common Candle, in a Case related by Dr. Rush was a deprivation of Sleep—

If other Arguments be necessary to prove this— the succession of the Darkness of the Night to the Light of the Day, affords an unconfounded one— So beautifully, as must appear to every observer, do all the Works of Nature harmonize, that we cannot refrain from the admiration of this perfection and the acknowledgement that however opposite each other some may appear, yet that "each establishes the good of the other"— The Alternation of Night and Day is one of the most striking Instances of this— When during the Day from the constant application of Stimuli

such as exercise mental and corporeal. Light be the excitability of the System is reduced below the par of excitement, in order, as is requisite for good Health, to the restoration of the equability — Night advances — the Stimulus of Light being by it removed — the excitability suffers a little elevation this small elevation disposes to rest and thus by the gradual abstraction of Stimuli, the excitability is brought up so near to a par with the excitement as to reach what is termed the "Resting Point" — During Rest from the very few Stimulants acting on the System, a sufficient quantity of excitability is accumulated for the fore action of Stimuli the ensuing Day — In this manner Health is continued —

If then, as I think the above arguments know, Light be a Stimulus, is it not surprising that while in the lowest stages of chronic Diseases Ether, opium, Wine and all the most stimulating remedies have been employed — no attention has been paid to the regulation of the Light and Darkness of sick Rooms —

As from the want of opportunities any practical observations on this Subject are beyond my power I beg leave to propose the following

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The mind is supposed by Mr Locke to sleep with the Body but so its Stimuli are also inactive during Rest

Suggestions

In those Diseases of feeble action, unattended with Cephalic Determination or Ophthalmic Affections, which require Stimulating remedies May not the action of Internal Stimuli be greatly assisted, by a full admission of Light, in exciting the System and thus prolonging life? And is it a fact well known to every Man attendant on Diseases, that a decided majority of Deaths occur in the Night, occasioned, no doubt principally by the abstraction of Light — May not the employment of artificial Lights, by continuing these essential Stimulus, tend frequently, at least, to protract Death?

In old chronic Ophthalmia when all the usual remedies have been unsuccessfully employed — Is it not highly probable that exposure to an intense Light, by creating a new Action, may be attended with very beneficial Effects?

In Manalgia, too, when Stimulants usually have been applied to every part of the Body, at all connected with the Brain either immediately or sympathetically — Is it not probable that one Cause of the want of success attending these efforts, may be the inattention paid to this specific Stimulus of the Eye, between which and the Brain there exists an intimate connection

-tion- and is it not very presumable from the evident effect induced on the Eyes by this Disease, that Impressions made thro the medium of these organs, would act more efficaciously than those made thro any other medium?

In short in all chronic Diseases or Disease requiring the "Stimulantia" but more particularly those connected with the Brain and Eyes and of these I would mention the chronic stage of Hydrocephalus Internus - Hypochondriasis or as more properly called by D. Rush "Tristimania" - Melancholia or more properly "Alienomania" an attention to the proper Variations of this Stimulus might, I think, under Medical Efforts frequently more efficacious and remove in some measure that imputation so commonly laid on the Profession - Uncertainty. A proper observance of this I claim as necessary in Chambers of the Diseased as the regulation of the Degrees of Heat, so universally strictly attended to -

The Increase or diminution of it, however, as of every other Stimulus, should I think, be gradual —

Having when speaking of Light unavoidably noted off the effects of its absence. I shall not, by selecting other Instances, unnecessarily protract this Head. To the Physician the advantages derivable from the employment of Darkness as a Remedy in acute Diseases, may, I think, be very great. Nature appears to indicate its propriety in a sick Room by the partially observable inclinations revealed to it. and from constant and universal Custom, we, in general, resort to it almost unconsciously, as our first remedy. But in this as in many other Instances, in observing the Dictates of Nature we are inattentive to that "Ne plus ultra" beyond which if pursued she invariably misleads. Thus while according to the predominance of the excitability or exhaustion of the System, we stimulate and sedate, is it not surprising that the impropriety of a continuance of the same Degree of Darkness in all the different Forms and Stages of Disease has not been more attended to —

As in the Treatment of all Fevers with Cephalic Determination. of Arterial Headache Ophthalmia and Otalgia; its importance is universally acknowledged and its employment adopted. I conceive it unnecessary further to

transit — In Mania, however, an attention to the greater or less Degree of Darkness as indicated by the Pulse should not be omitted by any one desirous of an effectual treatment of it —

Thus superficially have I hinted at the probable beneficial Effects of Light and Darkness in some of the different forms of Disease. The proper regulation of these, I have no doubt might greatly augment the efficacy of Blood-letting and the various remedies of the Materia Medica, in preventing or alleviating the already formed, Paroxysms, of all —

Alimentary &c
1809

An Inaugural Dissertation

for

The Degree

of

Doctor of Medicine

submitted

to the Examination

of

John M'Dowell, L.L.D. Provost

The

Trustees and Medical Professors

of the

University of Pennsylvania

by G. L. Lawton